

I. *Of Birds of Passage, by Mr. Mark Catesby,
F. R. S.*

*Read at a Meeting
of the Royal Society,
March 5. 1746-7.* **T**HE Places whereto Birds of Passage retreat when they take their Leave of us, are first of all to be inquired after; and then it will be proper to examine by what Road, and in what Manner they convey themselves to such Places wheresoever situated on our Globe.

The Reports of their lying torpid in Caverns and hollow Trees, and of their resting in the same State at the Bottom of deep Waters, are so ill attested, and absurd in themselves, that the bare Mention of them is more than they deserve. Of much the like Stamp is a late broach'd Hypothesis, which sends them above our Atmosphere for a Passage to their Retreat; which to me seems as remote from Reason, as the Ethereal Region is from the Aëreal; through which last Region I cannot conceive any Obstruction to their Passage, when, by the Approach of our Winter, they find a Want of Food, and at the same time are directed, by Instinct, to resort to some other Parts of the Globe, where they may find a fresh Supply. For the Want of Food seems to be the chief if not the only Reason of their Migration. And tho' Tit-mice and other small Birds abide here the whole Winter, and subsist on Insects, which they find torpid, or in a State of Mutation, in the Crevices of the Barks of Trees, and other their Winter-Recesses, yet most Birds of Passage, having tender Bills, are

incapacitated for this Work ; but then the Length of their Wings enables them to prey on numberless flying Insects, with which the Air is stored during the warm Months : And it is observable, that not only Swallows, but most other Summer Birds of Passage feed, on the Wing, on such-like Insects as are seen no more when cold Weather begins to come.

The various Conjectures concerning the Places whereto Birds of Passage retire, are occasioned by the Want of ocular Testimony to bring the Matter to some Certainty. But if the Immenseness of the Globe be considered, and the vast Tracts of Land which still remain unknown, unless to their own barbarous Inhabitants, it is no Wonder we are yet unacquainted with the Retreat of these itinerant Birds. If I may be allowed to offer my own Sentiments, I cannot but agree in the general Opinion of their passing to other Countries by the common natural Way of flying, with this additional Conjecture ; *viz.*, that the Places, to which they retire, lie probably in the same Latitude in the Southern Hemisphere as the Places from whence they depart ; where the Seasons reverting, they may enjoy the like agreeable Temperature of Air.

It may be objected, that Places of the same Latitude in the Southern Hemisphere may be divided by too wide a Tract of Sea for them to pass over. But why then may not some other Parts of the Southern Hemisphere serve their Turn ? This seems more reasonable to me, than that they should remain on our Side of the Northern Tropic ; within a few Degrees of which, at the Winter Solstice, it is so cold, as frequently to produce Snow ; which, by dispersing such

such Insects as Birds, that feed upon the Wing, and particularly the Swallow Kinds subsist on, must make them perish inevitably, were they not to change their Quarters for those more favourable Climes, where a Continuance of warm Weather affords their natural and proper Food. This their Sagacity dictates to them, and is the apparent Cause of their periodical leaving us at the Approach of Winter, before Flies are so dissipated by Cold and Winds as to be found no longer in the Air; tho' they may with other Insects be met with in Holes and hidden Recesses, and serve to subsist other Birds of Passage.

What I infer from hence is, that as Swallows cannot continue and subsist so long in cold Seasons as other Birds of Passage, they are necessitated to visit us somewhat later, and to depart sooner: For tho' Nightingales, and other Birds of Passage, are not often seen or observed after they cease singing, yet I have frequently taken notice of them in their solitary Coverts a Month after the Departure of Swallows. From these Reasons I therefore conclude, that Birds of Passage, particularly Swallows, are necessitated to pass the Tropic of *Cancer*; but how far more South, or to what Part of the Southern Hemisphere they go, remains unknown.

The Manner of their journeying to their Southern Abode may vary, as the different Structure of their Bodies enables them to support themselves in the Air: Those Birds with short Wings, such as the Red-start, Blackcap, &c. tho' they are incapable of such long Flights, and with so much Celerity, yet I can't see why they may not pass in the like manner, but by gradual and slower Movements. Swallows

and Cuckoos may probably perform their Flight in half the Time ; yet there seems no Necessity for a precipitate Passage, because every Day's Passage affords them Increase of Warmth, and a Continuance of Food a longer Time than is necessary for their Passage, were it to the same Latitude South as that from whence they came.

As Providence in many Instances has guided defenceless Animals to make use of the most necessary Means for their Security, why may not these, and other itinerant Birds, perform their long Journeys in the Night-time, to conceal themselves from rapacious Birds, and other Dangers that Day-light exposes them to ; which nocturnal Travelling of Birds of Passage I have Reason to believe more than barely probable, from the following Observation, which may serve in some degree to confirm it :

Lying on the Deck of a Sloop on the North Side of *Cuba*, I, and the Company with me, heard three Nights successively Flights of Rice-Birds (their Notes being plainly distinguishable from others) passing over our Heads northerly, which is their direct Way from *Cuba*, and the Southern Continent of *America*, from whence they go to *Carolina* annually at the time Rice begins to ripen ; and, after growing fat with it, return South back again.

The Flight of Birds of Passage over the Seas has by some been consider'd as a Circumstance equally wonderful with other Stories concerning them ; and especially in regard to those with short Wings, among which Quails seem, by their Structure, little adapted for long Flights ; nor are they ever seen to continue on the Wing for any Length of Time ; and

and yet their Ability for such Flights cannot be doubted, from the Testimony of many. *Bellonius* in particular reports, that he saw them in great Flights passing over and re-passing the *Mediterranean* Sea, at the Seasons and Times they visit and retire from us.

The same Sagacity that instructs them to change Climates may also reasonably be thought to direct them, and other Birds of Passage, to the narrowest Part of our Chanel, thereby to evade the Danger of passing a wide Sea; tho', by the many Instances I have seen of Birds driven Hundreds of Miles from any Land, there seems not that Necessity for their finding the Streights of *Calais*, as the shortest Passage to our Island, they being not unable to perform much longer Flights.

There are also Winter Birds of Passage, which arrive here in Autumn at the time the Summer Birds depart, and go away in the Spring Season, when Summer Birds return. These however are but few; there being only four Sorts that I know of; viz. the Fieldfare, Redwing, Woodcock, and Snipe; which two last I have frequently known to continue the Summer here, and breed; so that the Fieldfare and Redwing seems to be the only Birds of Passage that constantly and unanimously leave us at the Approach of Summer, retiring to more Northern Parts of the Continent, where they breed, and remain the Summer, and at the Return of Winter are driven southerly from those frigid Climates in search of Food, which there the Ice and Snow deprives them of. There are many others, particularly of the Duck and wading Kind, that breed, and make their Summer

mer Abode in desolate fenny Parts of our Island. When the Severity of our Winters deprives them of their liquid Sustenance, Necessity obliges them to retire towards the Sea in numerous Flights, where in open brackish Waters they find Relief, and at the Approach of the Spring they retire to their Summer Recesses. But these cannot be included among those usually termed Birds of Passage.

Besides the different Kinds of Swallows, I know of but one Kind of *European* Bird that subsists in like manner by catching its Food on the Wing, and that is the *Caprimulgus* or Goat-sucker, the capacious Structure of whose Mouth and Gullet is formed to receive Insects of the larger Kinds, as *Scarabæi*, *Grillo-talpæ*, &c. These are also Birds of Passage.

We have, 'tis hoped, made it pretty evident, that Summer Birds of Passage come to and depart from us at certain Seasons of the Year merely for the sake of a more agreeable Degree of Warmth, and a greater Plenty of Food; both which Advantages they procure by an alternate Change of Climate; but the Migration of Winter Birds of Passage, and particularly of Fieldfares and Redwings, is much more difficult to be accounted for, there being no such apparent Necessity, either on the Score of Food or Climate, for their Departure from us.

The Reason of their coming here in Winter is, 'tis highly probable, for the sake of Food, and a more suitable Climate than that they leave behind them; but, in some severe cold Seasons, and when there is a Scarcity of Berries they subsist here with Difficulty, and are even famished sometimes for Want of sufficient Food; yet what appears most unaccountable

countable is, that such as have continued with us a whole Winter in Penury, and should, one would imagine, rejoice at our approaching Spring, and build their Nests, and couple, on the contrary all depart; as if that mild and pleasant Temperature, which delights and cherishes most other Creatures, were disagreeable to them. We know the Places of their Summer Retirement to be *Sweden*, and some other Countries in that Latitude; but, as they would find those Countries too cold for their Reception, and probably destitute of Provision, were they to hasten directly thither when they depart from hence, they journey gradually, and prolong their Passage through the more moderate Countries of *Germany* and *Poland*, by which means they don't arrive at those Northern Regions, adapted by Providence for their Summer Abode, and the Breeding of their Young, till the Severity of the Cold is so much abated as to render it pleasing to them, and Food may be there found. When they visit us again in Winter, their Return back is after the same Manner.

The Winter Food of these Birds being Berries, and particularly Haws, as a greater Abundance of them grow in this Island than can be supposed in the more Northern Regions, that may possibly be one great Allurement to bring them over hither: But the principal Reason inducing them to travel Southward is probably the Rigour and Severity of the Cold in those frigid Climes, which Nature therefore directs them to desert for such as are more temperate.

A *Swedish* Gentleman informed me some Years ago, that, observing the Use we make of quick-set Hedges

Hedges in *England*, he sent some Plants of the white Thorn over to his own Country for the same Purposes; before which time he assured me there were none of them in *Sweden*, which I mention, in Support of what was said above.

The coming of these Birds to us may then pretty well be accounted for from the Reasons aforesaid; but the Cause of their Departure from hence at the time they leave us, is one of those Secrets in Nature which are not yet discover'd; for, should it be suggested, that they do not leave us till the Haws and Berries are all gone, and they are under a Necessity to seek for Food elsewhere, this would amount to little, unless it could be shewn, that the Northern Regions to which they journey can afford them a fresh Supply; which it is almost certain they cannot. And therefore, when first they go from us, they must either alter their Diet, or be in much Distress; but, as 'tis evident their Food in the Summer-time must be of a different Kind than what they eat in Winter, 'tis most likely they change their Diet; and then one would imagine they should find Subsistence here in greater Plenty, and much sooner than in the colder Countries to which they fly.

In short all, we can be said to know of the Matter, ends in this Observation, that Providence has created a great Variety of Birds, and other Animals, with Constitutions and Inclinations adapted to their different Degrees of Heat and Cold in the several Climates of the World (whereby no Country is destitute of Inhabitants) and has given them Appetites for the Productions of such Countries, whose Temperature is suited to their Nature, as well as Knowledge

ledge and Abilities to seek and find them out: From which we may infer, that the Birds we have been mentioning could no more subsist in the sultry Climes of the *Molucca* Isles, than Birds of Paradise could in the frigid Regions of *Sweden* or *Lapland*.

Besides the migratory Birds already mention'd, which breed and remain the whole Summer, there are other Birds that arrive periodically at certain Places for the sake of some Sort of Grain, or other Food, which may be supposed their own Country is destitute of: These Birds, after no long Continuance, depart, and are no more seen till that Time twelve Months after; at which time they return, and so continue repeating these annual Visits, as has been already observed of the Rice-Bird, and Blue-Wing of *Carolina* (*Nat. Hist. Florid. &c.* Vol. I. p. 14, & 99.) Tho' the secret Ways by which Instinct guides Birds, and other irrational Creatures, are little known to us, yet the Causes of some of their Actions are apparent.

Analogous to the lucrative Searches of Man thro' distant Regions, Birds take distant Flights in quest of Food, or what else is agreeable to their Nature; and when they discover some new Grain, or pleasing Food, they return and acquaint their Community therewith, and joining in numerous Flights, make annual Excursions to solace on this their exotic Food.

Since the Discovery of *America* there have been introduced from *Europe* several Sorts of Grain, which were never before known in that Part of the World, and which not before some Length of Time were found out, and coveted by some of these migratory

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Birds. No Wonder this Grain should not be immediately known to Birds of distant Regions; for above half a Century passed from the Time of cultivating Wheat, Rice, and Barley, in *Virginia* and *Carolina*, before those Grains were found out and frequented by these foreign Birds, of which one has but lately made its first Appearance in *Virginia* as my ingenious Friend Dr. *Mitchel* informs me, that he being in his Garden a Bird flew over his Head which appeared with uncommon Lustre, and surprised him the more, not having seen the like Bird before. Mentioning this to some of his Neighbours, he was told by them, what afterwards was confirmed to him by his own Observation; viz. that these exotic Birds had but within these few Years appeared in *Virginia*, and had never been observed there before.

They arrive annually at the time that Wheat (the Fields of which they most frequent) is at a certain Degree of Maturity; and have constantly every Year from their first Appearance arrived about the same time in numerous Flights. They have attain'd the Name of *Wheat-Birds*.